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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/510,828	02/23/2000	David R. Hembree	MIO-0020-VA/97-0198.02	4071

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KILLWORTH GOTTMAN HAGAN & SCHAEFF, LLP
ONE DAYTON CENTRE, SUITE 500
ONE SOUTH MAIN STREET
DAYTON, OH 45402-2023

EXAMINER

MITCHELL, JAMES M

ART UNIT PAPER NUMBER

2827

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/510,828

Applicant(s)

HEMBREE ET AL.9

Examiner

James Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-31, 36-40, 44-47, 50, 51, 54-56, 63-65, 68, 69 and 73-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 44-47, 50, 51, 54-56, 63-65, 68, 69, 74-88 is/are allowed.
- 6) ☐ Claim(s) 29-31, 36-40 and 73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 29-31 and 36-40 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There appears to be a grammatical error by including the phrase "said attachment device" in lines 9-10. The phrase is simply dangling with no cooperative relationship with any additional structure.

Claim Rejections - 35 USC § 102

Claims 29, 30, 31, 37-39 and 73 are rejected under 35 U.S.C. 102(e) as being anticipated by Hembree et al. (U.S 6,060,894).

Hembree (Fig. 2, 5, 6, 7) discloses an interconnect structure (22) comprising a plurality of patterned conductors (49) to match corresponding contacts (14) on a semiconductor die (10) formed within a package (Column 1, Lines 14-18) that is a direct chip attach, an attachment device ("applying mechanism") arranged to press the semiconductor between a spring element and said interconnect structure, the interconnect structure provides an electrical connection between said plurality of conductors and corresponding ones of said plurality of contacts, the attachment device comprised of a spring elements (78) and via the compressibility of the biasing elastomeric material (82A) that is comprised of conductive particles inherently interspersed within the elastomeric material (Column 5, Line 6); that is electrically biased through said spring element (Abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 29 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haseyama et al (U.S 6,299,320) in combination with Barker, III et al. (U.S 5,175,613) and Lee (U.S 5,014,161).

Haseyama discloses an interconnect structure (31) comprising a plurality of patterned conductors (30) to match corresponding contacts (28) on a semiconductor die (25) formed within a package that is direct attach, an attachment device (22), and the interconnect structure provides an electrical connection between said plurality of conductors and corresponding ones of said plurality of contacts.

Haseyama does not appear to disclose said attachment device arranged to press the semiconductor die between a spring element and said interconnect structure, wherein said spring element comprised of a spring elements comprised of an elastomeric member interspersed with gold conductive particles.

Barker utilizes an semiconductor die (24) between a spring element (52) and a interconnect structure (50), wherein said spring element comprised of a spring elements comprised of an elastomeric member and a conductive member

It would have been obvious to incorporate an inherent spring conductive elastomeric material on the die, such that the die is pressed between the spring element and interconnect in order to provide mechanical shock protection as taught by Barker (Abstract).

Lee (U.S 5,014,161) utilizes an elastomeric material interspersed with gold (Fig 2).

It would have been obvious to one of ordinary skill in the art for the conductive elastomer of Haseyama and Barker to be gold particles interspersed in the elastomeric material in order to provide a conductive elastomer as taught by Lee (Column 4, Lines 28-46).

Allowable Subject Matter

The indicated allowability of claim 73, were withdrawn in view of the newly discovered reference.

Claims 44-47,50, 51,54-56,63-65,68, 69 and 74-88 are allowed.

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The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose or make obvious a second elastic member being positioned in the holes of the first elastic member, the conductive member comprising carbon, or an elastic member having a variable spring constant.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

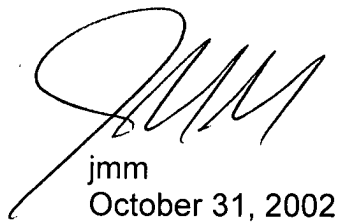
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

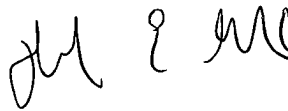
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


jmm
October 31, 2002



DAVID E. GRAYBILL
PRIMARY EXAMINER